

\$nolist

/*

modified 4/13/81 R. Silberstein

*/

/* Symbol types : */

```
dcl
reg      lit    '0',    /* register */
pseudo   lit    '1',    /* pseudo instruction */
code     lit    '2',    /* instruction */
string   lit    '3',    /* character string */
spec     lit    '4',    /* special character */
number   lit    '5',    /* 8 or 16 bit number */
variable lit    '6',
lab       lit    '7',    /* label */
operator lit    '8',    /* operator in expressions */
doubledefined lit '0f9h', /* doubled defined symbol */
neglected lit '0fah', /* neglected symb., never to be def. */
ident    lit    '0fbh', /* identifier, scanner output */
undefsymb lit '0fdh', /* undefined symbol */
symbol   lit    '0feh', /* variable, label or undef. symb. */
deleted symb lit '0ffh', /* deleted symbol (not used) */
```

/* Symbol description values */

```
dcl
nil      lit    '0',    /* no specification */
byt      lit    '1',    /* symbol is 8-bit type */
wr      lit    '2',    /* symbol is 16 bit type */
dwr      lit    '4',    /* symbol is 2*16 bit type
                        or a segment register */
```

/* Register values : */

```
dcl
rbx      lit    '3',
rbp      lit    '5',
rsi      lit    '6',
rdi      lit    '7',

res      lit    '0',    /* segment registers */
rcs      lit    '1',
rss      lit    '2',
rds      lit    '3';
```

/* Symbolic operators */

```
dcl
oshort   lit    '0',    /* 8-bit value of expression */
oor      lit    '1',    /* logical OR */
oxor     lit    '2',    /* logical XOR */
oand     lit    '3',    /* logical AND */
```

CP/M-86 v.1.1 (Vol. IV)

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```

onot      lit '4',      /* logical NOT */
oeq       lit '5',      /* equal */
ogt       lit '6',      /* greater */
oge       lit '7',      /* greater or equal */
olt       lit '8',      /* less */
ole       lit '9',      /* less or equal */
one       lit '10',     /* not equal */
omod      lit '11',     /* arithmetic MOD */
oshl      lit '12',     /* shift left */
oshr      lit '13',     /* shift right */
optr      lit '14',     /* take type of 1. op, value of 2. */
ooffset   lit '15',     /* offset value of operand */
oseg      lit '16',     /* segment value of operand */
otype     lit '17',     /* type value of operand */
olength   lit '18',     /* length attribute of variables */
olast     lit '19',     /* length - 1 */
leftbracket lit '["',
rightbracket lit '"]';

```

```
dcl
```

```

operandstruc  lit  'struc(
length        addr,
stype        byte,
sflag        byte,
segment      addr,
offset       addr,
baseindex    byte);

```

```
/* define bits of SFLAG of structures above */
```

```

type$bit      lit '7h', /* bit 0-2 */
segtypebit    lit '13h', /* bit 3-4 */
segmbit       lit '20h', /* bit 5 */
iregbit       lit '40h', /* bit 6 */
bregbit       lit '80h', /* bit 7 */

```

```
/* left-shift counters */
```

```

typecount     lit '0',
segtypecount  lit '3',
segmcount     lit '5',
iregcount     lit '6',
bregcount     lit '7',

```

```
/* define bits of BASEINDEX byte of structures above */
```

```

indexregbit   lit '01h', /* bit 0 */
baseregbit    lit '02h', /* bit 1 */
nooverridebit lit '40h', /* bit 6 */

```

```
/* left shift counters */
```

```

indexregcount lit '0',
baseregcount  lit '1',
noovercount   lit '6';

```

```
scan: proc external;
```

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end scan;

specialtoken: proc (tok) byte external;
 dcl tok byte;
end specialtoken;

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CORPORATION

MASSACHUSETTS 02142

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/*

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*/

/* Error numbers: */

dcl
 labourofrange lit '22', /* label out of range */
 missseginfo lit '23'; /* missing segment info in operand */

/* Structures: */

dcl

symbolstruc lit 'struct'
 length addr,
 stype byte,
 sflag byte,
 segment addr,
 offset addr,
 baseindex byte)',
 operandstruc lit 'symbolstruc';

/* define bits of SFLAG of structures above */

dcl
 typetbit lit '7h', /* bit 0-2 */
 segtypebit lit '18h', /* bit 3-4 */
 segmbit lit '20h', /* bit 5 */
 iregbit lit '40h', /* bit 6 */
 bregbit lit '80h', /* bit 7 */

/* left-shift counters */

typcount lit '0',
 segtypecount lit '3',
 segmcount lit '5',
 iregcount lit '6',
 bregcount lit '7',

/* define bits of BASEINDEX byte of structures above */

indexregbit lit '01h', /* bit 0 */
 baseregbit lit '02h', /* bit 1 */
 nooverridebit lit '40h', /* bit 6 */

/* left shift counters */

indexregcount lit '0',
 baseregcount lit '1',
 noovercount lit '6';

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/* Miscellaneous global variables: */

dcl

ABSADDR (4) BYTE EXTERNAL, /* ABSOLUTE ADDRESS FIELD */
cip addr external, /* current instruction pointer */
csegvalue addr external, /* current segment value */
noerror byte external, /* errorflag in codemacro decoding */
firstmacroptr address external, /* pointer at first codemacro */
macroptr address external, /* current pointer within macros */
fullsymtab byte external, /* full if symboltable is full */
nooper byte external, /* no of instruction operands */
operands(4) operandstruc /* instruction operands,max 4 */
 external;

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dcl
pass byte external, /* current pass no, 1,2,3 */

prefix (240) byte external, /* prefix to source line */
prefixptr byte external, /* pointer to prefix buffer */

accu\$save(80) byte external
accl\$save byte external,

/* Miscellaneous variables: */

full\$symtab byte external, /* full if symboltable is full */
current\$symbol symbol\$truc /* current scanned symbol */
 external,
symtab\$adr address external, /* pointer at symbol in table */
codemacro\$ptr address external, /* pointer to found codemacro */
codemacro\$flag byte external; /* true if building a codemacro */

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SER. # _____

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/*

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*/

/* Symbol types : */

```
dcl
reg      lit    '0',    /* register */
pseudo   lit    '1',    /* pseudo instruction */
code     lit    '2',    /* instruction */
string   lit    '3',    /* character string */
spec     lit    '4',    /* special character */
number   lit    '5',    /* 8 or 16 bit number */
variable lit    '6',
lab      lit    '7',    /* label */
operator lit    '8',    /* operator in expressions */
doubledefined lit '0f7h', /* doubled defined symbol */
neglected lit    '0fah', /* neglected symb., never to be def. */
ident    lit    '0fbh', /* identifier, scanner output */
udefsymb lit    '0fdh', /* undefined symbol */
symbol   lit    '0feh', /* variable, label or undef. symb. */
deleted symb lit    '0ffh'; /* deleted symbol (not used) */
```

/* Symbol description values */

```
dcl
nil      lit    '0',    /* no specification */
byt      lit    '1',    /* symbol is 8-bit type */
wr      lit    '2',    /* symbol is 16 bit type */
dwr      lit    '4';    /* symbol is 2x16 bit type
                        or a segment register */
```

/* Register values : */

```
dcl
rbx      lit    '3',
rbp      lit    '5',
rsi      lit    '6',
rdi      lit    '7',

res      lit    '0',    /* segment registers */
rcs      lit    '1',
rss      lit    '2',
rds      lit    '3';
```

/* Symbolic operators */

```
dcl
oshort   lit    '0',    /* 8-bit value of expression */
oor      lit    '1',    /* logical OR */
oxor     lit    '2',    /* logical XOR */
oand     lit    '3',    /* logical AND */
onot     lit    '4',    /* logical NOT */
```

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```

oeq      lit '5',      /* equal */
ogt      lit '6',      /* greater */
oge      lit '7',      /* greater or equal */
olt      lit '8',      /* less */
ole      lit '9',      /* less or equal */
one      lit '10',     /* not equal */
omod     lit '11',     /* arithmetic MOD */
oshl     lit '12',     /* shift left */
oshr     lit '13',     /* shift right */
optr     lit '14',     /* take type of 1. op, value of 2. */
ooffset  lit '15',     /* offset value of operand */
oseg     lit '16',     /* segment value of operand */
otype    lit '17',     /* type value of operand */
olength  lit '18',     /* length attribute of variables */
olast    lit '19',     /* length - 1 */
leftbracket lit '["',
rightbracket lit '"]';

```

```
dcl
```

```

operandstruc  lit  'struct(
length        addr,
stype         byte,
sflag         byte,
segment       addr,
offset        addr,
baseindex     byte)';

```

```
/* define bits of SFLAG of structures above */
```

```

type$bit      lit '7h', /* bit 0-2 */
segtypebit    lit '18h', /* bit 3-4 */
segm$bit      lit '20h', /* bit 5 */
iregbit       lit '40h', /* bit 6 */
bregbit       lit '80h', /* bit 7 */

```

```
/* left-shift counters */
```

```

typecount     lit '0',
segtypecount   lit '3',
segmcount     lit '5',
iregcount     lit '6',
bregcount     lit '7',

```

```
/* define bits of BASEINDEX byte of structures above */
```

```

indexregbit    lit '7', /* bit 0-2 */
baseregbit     lit '30h', /* bit 3-5 */
nooverridebit  lit '40h', /* bit 6 */

```

```
/* left shift counters */
```

```

indexregcount  lit '0',
baseregcount   lit '3',
noovercount    lit '6';

```

```
dcl
```

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```
undefsymbol      lit '10'; /* undefined elem. of expression */

newsymbol: proc(lg, stradr, result) byte external;
  dcl lg byte, (stradr, result) addr;
end newsymbol;

findsymbol: proc(lg, stradr, result) byte external;
  dcl lg byte, (stradr, result) addr;
end findsymbol;

getattributes: proc(symbadr, dest) external;
  dcl (symbadr, dest) addr;
end getattributes;

enterattributes: proc(symbadr, source) external;
  dcl (symbadr, source) addr;
end enterattributes;

scan: proc external;
end scan;

specialtoken: proc (tok) byte external;
  dcl tok byte;
end specialtoken;

bracketexpr: proc (pt) byte external;
  dcl pt address;
end bracketexpr;

$list
```

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dcl

acclen byte external, /* accumulator length */
accum(80) byte external, /* actual token scanned */

/* Miscellaneous variables: */

noerror byte external, /* errorflag in codemacro decoding */
firstmacroptr address external, /* pointer at first codemacro */
macroptr address external, /* current pointer within macros */
nooper byte external, /* no of instruction operands */
operands(4) operandstruc /* instruction operands,max 4 */
 external,
codemacroptr address external; /* pointer to found codemacro */

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/*

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*/

dcl	
end\$of\$line\$err	lit '6', /* garabage at end of line */
pseudooperr	lit '11', /* illegal pseudo operand */
illexprelem	lit '20', /* illegal expression element */
missseginfo	lit '23'; /* missing segment info in operand */

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```
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```

```
/*
```

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```

```
*/
```

```
dcl
pass      byte external, /* current pass no, 1,2,3 */
```

```
/* print output parameters */
```

```
printon      byte external, /* on/off flag */
printswitchoff byte external, /* set/reset by NOLIST/LIST */
IFLIST       BYTE EXTERNAL, /* SET/RESET BY IFLIST/NOIFLIST */
maxcol       byte external, /* pagewidth */
title (30)   byte external, /* user specified program title */
pagesize     byte external, /* page size */
simform      byte external, /* true if formfeed simulation */
sourceptr    byte external, /* source buffer pointer */
```

```
/* scanner variables: */
```

```
token struct /* actual token scanned */
  type byte, /* token type, legal values :
              reg - register
              pseudo - pseudo code
              string - text string
              spec - special character
              number - number
              operator - arithmetic operator
              ident - identifier */
```

```
descr byte, /* token description, legal values:
              nil - no specification
              byte - 8 bit type
              word - 16 bit type
              dword - 32 bit type */
```

```
value addr) external, /* token value */
nextch byte external, /* next input character */
acclen byte external, /* accumulator length */
accum(80) byte external, /* actual token scanned */
eofset byte external, /* true if end-of-file found */
```

```
/* Miscellaneous variables: */
```

```
include$on      byte external, /* true if INCLUDE file input */
IFLEVEL        BYTE EXTERNAL, /* IF-ENDIF NESTING LEVEL */
operands(4)     operandstruct /* instruction operands, max 4 */
                external,
include$default byte external; /* default drive for include file */
```

```
$list
```

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SER. # _____

%nolist

declare endbuf address external;

%list



